

S.N. 10/692,698
RESPONSE TO OFFICE ACTION MAILED 03/28/2005

Law Offices of Natan Epstein
Attorney Docket DE012

REPLACEMENT SECTION

Summary of the Invention

This invention provides a height adjustable or riser seat which is responsive to repositioning of the user's body weight on the seat.

The adjustable height seat has a chair frame, a seat supported on a movable member slidable relatively to a stationary member on the frame, a spring normally urging the movable member towards an elevated condition, the movable member and the stationary member being arranged and configured such that the movable member is arrested against movement relative to the stationary member in a generally normal upright or forward leaning seated position of the user such that the seat remains at a selected position relative to the frame, and the body weight of the user overcomes the urging of the spring in a relatively reclining position of the user thereby to depress the movable member for lowering the seat on the frame, and the entire seat can be raised on the frame by partially offloading the user's body weight from the seat onto a ground surface such that the spring overcomes the user's remaining body weight on the seat thereby elevating the movable member and the entire seat. The movable member and the stationary member may be assembled in telescoping relationship to provide a telescoping support in which the movable member can be arrested by frictional engagement with a stationary member. In a presently preferred form of the invention the seat rises and lowers without significant tilting relative to the telescoping support or the wheelchair frame.

The adjustable height seat of this invention may be also understood as having a chair frame, a telescoping support mounted to the chair frame, a seat supported on the telescoping support, a spring normally urging said telescoping support towards an elevated condition, the telescoping support being operative for raising and lowering the entire seat relative to the chair frame responsive to repositioning of a user's body weight on the seat. The chair frame may be of any suitable design, and may be a wheelchair frame including a folding wheelchair frame. In the case of a folding wheelchair frame, one or both of the movable and stationary members may be removable from the chair frame to permit folding of the chair frame.

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Preferably, the entire seat is depressed from an elevated to a lowered position when the user's body assumes a relatively reclined position wherein the user's body weight overcomes said urging of said spring. Conversely, the entire seat may be elevated from a lowered position if the user's body is partially offloaded from said seat onto a ground surface such that said spring overcomes the user's remaining body weight on said seat and causes telescoping extension of said telescoping support for raising said seat relative to said frame. The telescoping support is frictionally arrested against substantial telescoping movement in a generally upright or forward leaning seated position of the user on said seat for holding the seat at a desired position.

In one form of the invention the telescoping support is inclined away from the vertical. In the case where the chair frame has a back, a front and two sides, the telescoping support may be inclined towards the front between the sides.

In one possible configuration the telescoping support has an upper member telescopically slidable relative to a lower member, and the seat is mounted on the upper member. The upper and lower members may be tubular members of rectangular cross section telescopically slidable relative each other, for example, the upper member slidable within the lower member. The spring, such as a gas spring, may be contained in the tubular upper and lower members.

In one embodiment of the invention the adjustable height or riser seat is installed in a folding wheelchair of the type generally comprising a wheel chair frame having left and right frame subassemblies, a scissor arrangement including a center pivot interconnecting the frame subassemblies for movement towards and away from each other between a deployed condition and a folded condition of the wheel chair. The telescoping support and seat are mounted between the frame subassemblies.

In one form of the invention the telescoping support is mounted in a riser seat frame which is removably suspended from the wheelchair frame. The riser seat frame is removed from the wheelchair frame to permit folding of the wheelchair frame or to install a non-rising seat as a replacement for the riser seat.

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In another form of the invention a lower member of the telescoping support is permanently mounted to the wheelchair frame, and the seat attached to an upper member of the telescoping support is removable from the permanently mounted lower member to allow folding of the wheelchair.

The height adjustable seat can be installed in a folding wheelchair frame of the type having a folding scissor arrangement with cross braces for interconnecting two side frame subassemblies. In such case the telescoping support may be supported at the center pivot of the scissor arrangement, and a second support point may be provided by foldable slide braces included in the scissor arrangement thereby to hold the telescoping support upright between the frame subassemblies.

In an alternate form of the invention suitable for folding and non-folding wheel chair frames, the telescoping support is mounted on a removable riser seat frame adapted to be suspended between the frame subassemblies of the wheel chair and to be removed for folding of the wheel chair frame or for replacing the riser seat with a non-rising seat. The removable riser seat frame can be installed in a wheel chair frame as a replacement for a conventional wheelchair seat. The riser seat frame may be of adjustable width to fit wheel chair frames of different width.

The removable riser seat frame may have a pair of transverse supports connected by a pair of longitudinal beams, with the telescoping support being mounted between the longitudinal beams. Hanger brackets may be provided on each of the transverse supports for suspending the riser seat frame from the left and right frame subassemblies of the wheelchair frame. The transverse supports are of telescoping length for adjusting the spacing between the hanger brackets thereby to fit wheel chair frames of different width, and fasteners may be provided for fixing the length of the transverse supports.

These and other improvements, advantages and features of this invention will be better understood by reference to the detailed description of the preferred embodiments set forth below, taken in conjunction with the accompanying drawings.